

The NASA Space Infrared Telescope Facility

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The NASA Space Infrared Telescope Facility (SIRTF) will begin definition phase funding in November of 1996. The design goal for SIRTF is a cryogenically cooled space observatory with an 85 cm primary optic cooled to 5.5K and instrumentation covering the wavelength range from 3.5 μm to 160 μm . Placement into a heliocentric orbit at a significant distance from the Earth and careful attention to thermal and cryogenic design will allow 250 liters of superfluid helium to provide a lifetime in excess of 2.5 years. The instrumentation for SIRTF will include a short wavelength camera, provided by the Smithsonian Astrophysical Observatory, operating from 3.5 μm to 8 μm , a set of four spectrometers, provided by Cornell University, operating from 5 μm to 40 μm with resolution up to 1000, and a long wavelength camera, provided by the University of Arizona, operating from 24 μm to 160 μm . All of the instruments use large array detectors developed for use on SIRTF.

The instrumentation is being designed to accommodate scientific investigation programs in four key areas: discovery and study of brown dwarfs and super planets, discovery and study of protoplanetary and planetary debris disks, study of ultra-luminous galaxies and active galactic nuclei (AGN) and study of the early universe. Instrument capabilities suitable for these four key areas will be suitable for a wide range of astronomical investigations. SIRTF's high sensitivity and instrument design for maximum spatial resolution at longer wavelengths will make SIRTF especially powerful for study of nearby planetary and protoplanetary systems and have made the facility a cornerstone of the NASA Origins program.

More than 75% of the observing time on SIRTF will be available to guest investigators selected from the scientific community. Within the guest observer program, SIRTF is developing a "legacy" science program of major investigations with strong participation by the astronomical community to take best advantage of the unique capabilities and relatively short lifetime of the SIRTF observatory.

Industry partners have been selected to work on the design and development of SIRTF and preliminary design activity was begun in September. After an 18 month design effort the development phase of SIRTF is expected to begin in the second quarter of 1998 leading to a launch in mid 2002.